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Can we make affordable, accessible housing financially feasible in Sydney?

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Stimulating affordable, accessible infill development is essential if Sydney's housing deficit is to be reduced without the environmental impacts of large scale Greenfield development. But despite a Metro Strategy that targets 70% of new development for infill sites, an enhanced array of Commonwealth and State housing supply subsidies, and increased state government intervention in development regulation, too little affordable market rate housing is being developed (NHSC 2010). One important reason claimed by some commentators is that low-priced housing is not financially feasible in accessible locations. Some interesting recent analyses have identified a significant gap between the costs of housing development and the price at which it will sell, and suggest that merely increasing densities will not resolve this problem (NHSC 2010; Graus 2010). Is it possible to rethink the form in which subsidies are provided, or the ways that development is regulated, to enable developers to produce housing that is both affordable and accessible?

This paper investigates this question, using a hypothetical set of development options for three sites in Sydney's middle ring suburban southwest. I focus on market rate housing affordable to new home buyers (although there is significant overlap with the provision of affordable market rate rental housing). I do not address the provision of social housing which generally provides deeper subsidies to low income households, although the argument presented here may have implications for subsidized housing provision. Sydney's housing affordability problems stretch quite far up the income distribution, with median home prices reaching $625,488 in mid-2010 (APM 2010).

I begin by reviewing the metropolitan area's development environment, examining major explanations for the housing deficit, and recent research on the impacts of current homeowners' subsidies. I discuss briefly the literature on the significance of infill development (and transit accessibility) for both environmental sustainability and affordability. Next, I summarize the results of recent research on the housing cost-price gap. Based on the gap identified in this

research, I discuss alternative ways the cost-price gap could be filled to make moderately priced housing feasible in infill locations with good public transport access. I develop a series of sensitivity analyses to test out these alternatives in three locations. The paper concludes by summarizing the policy implications of the analysis.

Affordable housing development challenges in Sydney

Sydney's development environment

Sydney has one of the least affordable housing markets in Australia, and is routinely ranked one of the least affordable (relative to resident incomes) in the Anglo world (Demographia 2010). The state's projections that the metropolitan area will grow from 4.2 million people in 2010 to 6 million in 2036 (NSW Department of Planning 2010) raise difficult questions about how the housing market will cope with this growth. Estimates put the current NSW housing deficit at approximately 99,000 homes (Johanson 2010). Future population growth will require an additional 770,000 new homes by 2036 (NSW Department of Planning 2010). Residential development has not kept pace with household growth, even given that households have grown less fast than we would expect based on population (because average household size has remained fairly high at 2.51) – a classic indicator of frustrated demand, reflecting households doubling up as a response to high housing prices.

There are several explanations for this shortfall, advanced by different actors. The slow pace of development approvals, and lack of appropriately zoned land, are major barriers argued by the development industry (Urban Task Force Australia 2010; Johanson 2010; UDIA 2010; Demographia 2010). Others argue that urban growth boundary-related constraints on the supply of Greenfield sites had increased housing prices in Sydney (Commonwealth of Australia 2008). But although rezoning has accelerated since then, new housing supply has continued to shrink (NSW Dept of Planning 2009). Consequently, others argue that speculative land holding and unwillingness to sell released land is another barrier (Commonwealth of Australia 2008; Council of Social Services NSW 2010). The NSW Dept of Planning has intervened to try to simplify and reform the development approval process, and is now engaged in attempting to speed the land sales process (NSW Department of Planning 2006; NSW Premier's Office 2010). Limitations on developer contributions have been imposed, in response to criticisms that entry fees and taxes have risen sharply and have not been capitalized into land prices, as economic theory predicts they should (NSW Premier's Office 2010; Pendall 1999). Other research has pointed to the limits on effective demand, with prospective home buyers unable to afford housing constructed at market rates (City Futures 2010; Randolph 2008). Small-scale investors compete with first time buyers for affordably priced existing housing.

The intense debate about how to match housing supply more closely with current and projected demand reflects the politicization of the development process. Overlaid on this, the State's metropolitan strategy aims to achieve environmental sustainability goals as well as housing affordability goals, introducing a new layer of conflict (Campbell 2001). Strategic commitments to accommodating 70 percent of new development in infill locations will require densification throughout the metro area. This policy has been strenuously resisted in some locations (such as Ku-Ring-Gai) and embraced in others (such as the City of Sydney). In most LGAs, the need for densification has been accepted, but this has not translated into substantial infill development in most middle and outer ring suburbs (Randolph 2006; Searle 2007). LGAs are not necessarily opposed to densification, but they are often confused about how to stimulate such development, beyond zoning land that often remains undeveloped. Infrastructure availability is an important

barrier in some of these locations, but not all (Commonwealth of Australia 2010; Council of Social Services NSW 2010).

Sydney's development environment is complex, and its interrelated problems often appear intractable. Efforts to solve one type of barrier often have unanticipated consequences, worsening other barriers. Home buyer subsidies are good examples of this. The major subsidy, the First Home Owners' Grant (FHOG), is a Commonwealth initiative, introduced to ease the transition to imposing GST on construction in 2001. Several analyses have provided strong evidence that while the FHOG may change the timing of home purchase it does little to increase affordability, primarily because the untargeted subsidy increases housing prices throughout the market (Martin 2009; Bourassa and Yin 2006; Burke and Hulse 2010). The FHOG was supplemented for a limited period as an economic stimulus measure during the first stages of the GFC, with an additional supplement for buyers of newly constructed homes. Because most first-time home buyers are at the low end of the market, the concentration of demand likely increased prices rather than improving affordability or overcoming barriers to ownership (Martin 2009). But the vast majority of homes purchased were existing homes, and thus the grant may also have had very little impact on stimulating the construction industry (the intent of the $1 billion package). Instead, it helped support home prices through the first stage of the GFC (Burke and Hulse 2010). The NSW state government added a top-up subsidy to the FHOG until June 2010.

As home purchases slumped once the enhanced subsidy ended, a new stimulus was introduced – waiver of stamp duty on newly constructed homes (the Home Builder's Bonus). The stamp duty waiver is intended to stimulate construction more directly, as it is restricted to construction that has not yet commenced. It is also targeted to moderately priced homes (under $600,000), unlike the FHOG (NSW Government 2010). A similar stamp duty waiver on moderately priced homes in Western Australia in 2004 was found to have a significant impact on demand, increasing home purchases within the target price range by 22% compared with seasonally adjusted averages over the previous 17 years (Costello 2006, 12). Costello warns that such sharp increases in demand (which had noticeable effects on the aggregate housing market) may be capitalized into housing prices. Early indications from NSW's stamp duty waiver are that it is having significant effects on stimulating demand for new construction, with 1,533 purchases under the scheme between July 1 and September 9, 2010 (Roozendaal 2010).

Is it possible for subsidies to achieve the following three goals simultaneously?

- Avoid increasing market prices
- Improve access to affordable housing for low to moderate income home buyers
- Stimulate housing supply?

The significance of infill development

Some argue that the Metro Strategy's sustainability goals add to the cost of housing by directing the major share to infill locations, and that there is an inevitable conflict between environmentally responsible development and affordable development (Urbis 2010; Urban Task Force Australia 2010). But there are good counter arguments, and a growing body of evidence that affordability may be better protected in the long run by developing in a sustainable manner (Trubka, Newman and Bilsboro 2009; Blair, Prassad, Judd, Zehner, Soebarto, and Hyde 2004)). One set of arguments centres on the avoided costs for new infrastructure; a new home in an infill location in NSW is estimated to cost $80,000 less in new infrastructure on average than an identical home in a Greenfield location (Corelli 2010). If we extended this argument to include unpriced environmental resources that are lost to Greenfield development, this savings would likely be

greater. Infrastructure costs cannot be separated from the cost of housing; if they are not paid upfront by home buyers, they will be paid over time by all community residents (the relative equity of each of these options is an interesting question we do not address here).

A second important argument is that home buyers purchase not just a dwelling but also a location. Low priced housing in a Greenfield location disconnected from job opportunities, essential services, and public transport alternatives, may not be very affordable once a household is covering the costs of a car for each job holder and a weekly travel budget that adds to the burden of mortgage repayments (Dodson and Sipes 2008). Time spent in traffic jams has an opportunity cost that is considered carefully by many prospective home buyers, and accessible infill locations are likely to be judged more affordable by many different demographic groups. The housing-transport affordability nexus is explicitly recognized in "location-efficient mortgage" programs piloted in some U.S. cities (Krizek 2003)

From a broader sustainability perspective, affordable housing located close to job centres can improve economic sustainability by providing "workforce" housing. Social divisions will be reduced if affordable housing is integrated into existing communities offering a wide range of services, recreational options, and livability (Randolph 2008). The carbon impacts of increased car travel (and the environmental impacts of oil dependence) impose substantial costs that we probably do not measure very accurately (Newman and Kenworthy 2006; Trubka, Newman and Bilsborough 2009).

Is it possible for infill housing development to achieve the following three goals simultaneously?

- Increase access to affordable housing
- Make best use of existing infrastructure investments, and minimize new infrastructure needs
- Improve access to jobs, amenities, and services in affordable suburbs?

The housing cost-price gap

While existing housing is likely to offer the most affordable home ownership alternatives, Sydney's projected population growth demonstrates clearly that affordable new construction is also needed. And, if we are to densify the metro area appropriately, some redevelopment of existing lower density inner and middle ring suburbs is unavoidable. Densification makes sense around existing transport infrastructure, because it will enable us to use that scarce resource far more effectively. Increased densities are often the first sorts of regulatory bonus considered to improve affordability. But assessments of the financial feasibility of potential development locations around existing heavy rail stops suggest that denser housing types may not be feasible in those locations (Graus 2010).

Graus bases his assumptions on current typical market prices in one location, Padstow station in Sydney's Southwest (shown outlined in red in Figure 1). Padstow, in the Bankstown LGA, is a relatively low cost suburb with a mix of older single-family homes with some small walk up apartment buildings. It borders an industrial district, and is well located relative to larger job centres around Botany Bay. In principle, Padstow is a promising location for new affordable housing development taking advantage of train connections and local services in Bankstown. Graus's analysis is particularly interesting because it is based on the characteristics of a specific local housing market; but it has the potential to be generalized to the wider metropolitan area, where very different market conditions are likely to exist around different rail stations.

Based on typical construction and land costs, and sales prices, assuming a standard five percent in overheads and ten percent in holding costs, the analysis suggests some interesting things. First, denser housing is not necessarily more feasible. Because construction costs do not vary much between different housing typologies, but land and sales prices do, in a location with relatively low land prices financial returns do not increase in a linear relationship with density. Graus finds that single-family homes are infeasible, but walk up apartment buildings (the densest option considered) also offer a negative return. Medium density options such as terrace homes produce the best return, although the return is somewhat lower than expected market returns, which are estimated currently at about 12.5 percent (Chong 2010). They are substantially higher however than the average negative market returns to residential developers, estimated by NHSC (2010).

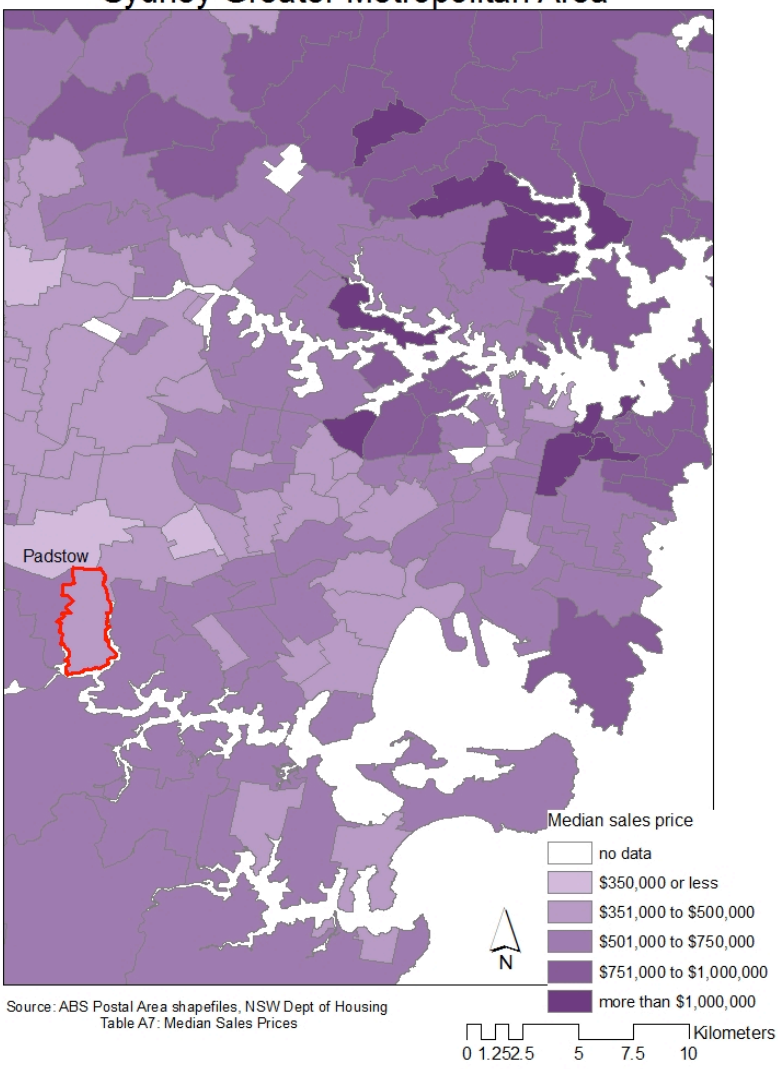
Table i: Gross Margin Analysis

	Duplex	Terrace	Four plex	3 storey WU	4-8 storey		8-20 story	High-rise	Mixed use
Density (per units)	**2**	**4**	**4**	**12**	**20**	**30**	**70**	**150**	**250**
Car space ratio	0	1	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Number of car spaces	0	4	3.2	9.6	16	24	56	120	200
Cost per car space	$0k	$40k	$45k	$50k	$55k	$55k	$55k	$55k	$55k
Median value (per unit)	**$550k**	**$552k**	**$527k**	**$506k**	**$480k**	**$442k**	**$392k**	**$342k**	**$291k**
Construction costs (per unit)	**$300k**	**$293k**	**$280k**	**$260k**	**$250k**	**$240k**	**$230k**	**$222k**	**$219k**
Other costs per unit	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Financing costs per unit	5.0%	5.0%	5.0%	7.5%	7.5%	7.5%	7.5%	10.0%	10.0%
Gross margin (per unit)	**$58k**	**$26k**	**$27k**	**$16k**	**$6k**	**-$8k**	**-$29k**	**-$61k**	**-$88k**
GM%	10%	5%	5%	3%	1%	-2%	-7%	-18%	-30%

Source: Graus 2010

In markets where housing prices are higher (most of the Eastern or Northern suburbs, for instance), land prices (and sales prices) are such that higher densities would indeed increase returns and thus improve financial feasibility. But those are not affordable markets, as Figure 1 demonstrates.

Figure 1: Median sales price, Q1 2010
Sydney Greater Metropolitan Area



This poses a conundrum: developing affordable market rate infill housing may not be financially feasible in the locations where prices are lowest. Developers may be acting quite rationally when they fail to take advantage of the development opportunities offered by rezoned land (even assuming that land prices do not rise to reflect regulatory gains). In light of this analysis, continued declines in development rates, despite stimulus spending, high and increasing demand, and large-scale rezonings of residential land, may be more explicable.

How do we begin to address this gap?

One answer is to try to raise prices, by making locations like Padstow more attractive to the households who would bid up housing prices. But this raises what we might call the "gentrification" dilemma. While dense neighbourhoods should indeed have high quality amenities, and densification of accessible locations is likely to increase attractiveness to new retail and service providers, relying on a "place regeneration" strategy is both expensive, and counterproductive if our goal is also to increase the supply of affordable housing (Randolph

2008). Walk up apartments in Padstow that command a market price of $380,000 offer a scarce resource: newly built, accessible housing affordable to households earning approximately $84,000 (based on author's calculations).

If we are to close the feasibility gap while retaining the affordable price, we could also try addressing the other side of the equation: developers' willingness to build lower priced housing. There are two main ways to do this: by regulating developer decisions in some way, or by changing the returns they receive.

Regulatory strategies: Inclusionary zoning (requiring or encouraging developers to set aside a percentage of homes at lower than market prices) is one option. Inclusionary zoning requirements can be mandatory (in which case they generally account for quite a small percentage of total units). South Australia adopted inclusionary zoning as one component of its Housing Plan for South Australia in 2005, requiring developers to set aside ten percent of units for low-income households and five percent for households with special needs. Local programs in Green Square, Pyrmont-Ultimo and Willoughby set aside much smaller percentages, but also allow developers to make an in-lieu cash contribution, and thus act more like housing impact fees than inclusionary zoning (Housing NSW 2010 Mandatory policies; Gilmour 2010; Williams 2000).

But most regulatory schemes have used a voluntary approach, with set asides being rewarded with higher densities, lower parking requirements, or some other regulatory bargaining chip that compensates developers for taking a below market return on some homes (Calavita, Grimes, and Mallach 1997; Gurran 2008). They do raise some problems. Regulatory incentives do not necessarily compensate developers, especially in relatively slack markets like Padstow. The extent to which incentives can offer sufficient cross-subsidies can vary dramatically as market conditions change, so that without constant updating and re evaluation they may result in massive over- or under-subsidies. Mandatory schemes avoid this, but are very difficult to gain acceptance for if they impose significant costs on developers (and thus cross-subsidy burdens on other home buyers) (Powell and Stringham 2005; Brunick 2004; Calavita, Grimes, and Mallach 1997).

Planning bonuses (such as density increases and careful design of smaller lots) have been used to offset the costs of lower priced housing in a few demonstration projects. LandCom's Forest Glade development in Blacktown set aside 20% of 63 units for lower income households and those with special needs, with deed restrictions and a second mortgage to control resale. The agency reported that the project succeeded financially, but it represented a small-scale demonstration that has not been widely repeated (LandCom n.d.; Beer, Kearins and Pieters 2007).

Subsidy strategies: subsidizing market gaps to achieve a publically agreed good is a more direct and, potentially, equitable approach. It clarifies the value placed on public goals, and provides a transparent path to achieve them. But subsidies are contentious because they redistribute (if they are well designed subsidies, away from some better off parties), and of course they cost money. They can easily be poorly designed, leaking into the pockets of those they were not designed to benefit, spreading largesse too widely, and subsidizing actions that would have occurred anyway (as the above discussion of the FHOG argued). But despite this pitfall, well-designed and well-targeted subsidies have considerable potential to stimulate development that is not financially feasible otherwise. Collectively, current home buyers receive a considerable subsidy in the form of the FHOG. The funds spent on that subsidy could be restructured in several more beneficial ways. The following section of this paper examines whether the housing cost gap example developed above could be addressed by restructuring existing subsidies.

Filling the housing cost gap

This section of the paper develops a hypothetical model, and reports the results of several sensitivity analyses to investigate whether capital or other subsidies could address the dilemma that new affordable market rate infill housing may be financially infeasible. I extend the analysis summarized above, looking at three similar suburbs in Sydney's middle ring southwestern suburbs. The three suburbs were chosen because they have train stations and are within 35 to 45 minutes of Town Hall Station. While not all residents would work in the CBD, I use this as a generalisable measure of accessibility to job centres. I constructed an analysis for a hypothetical apartment complex, assuming a FSR of 1.5, and for a hypothetical townhouse complex, assuming a FSR of 0.5. I use estimates of housing costs derived from NHSC (2010), and land prices based on the Department of Lands and Property Management data for indexed residentially zoned land sales in the three suburbs (NSW Land and Property Authority 2010). I estimated likely sales prices based on suburb-wide averages reported by the NSW Department of Housing for the first quarter of 2010 (NSW Department of Housing 2010), and property searches for new two bedroom one bathroom apartments that were sold or offered for sale in the three suburbs in mid-2010. Nevertheless, the assumptions are approximate; the three examples should be understood as hypothetical rather than "real" locations. They illustrate three points on the continuum we might encounter in "low-value" suburbs: low land prices / low sales prices (Wiley Park); high land prices / high sales prices (Oatley); and moderate-low land prices / moderate-high sales prices (Riverwood). My purpose is to illustrate the challenges one might encounter in manipulating financial outcomes in each type of housing market.

Figure 2: Change in median sales price, 2009-2010
Sydney Greater Metropolitan Area

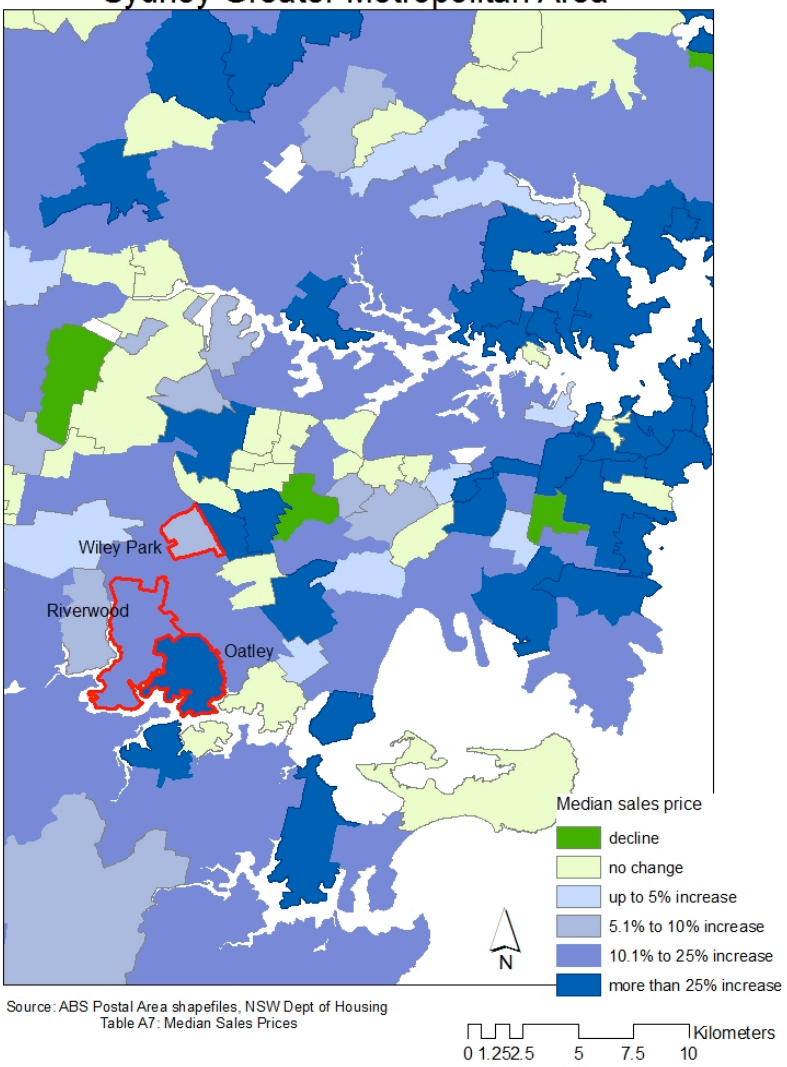


Table ii summarises the "base case" model. One of the locations (Riverwood) shows a positive return for the apartment complex, although the margin is much lower than most developers would find acceptable currently. Both Wiley Park and Riverwood have positive returns for the townhouse development, but just barely in the case of Wiley Park. Riverwood's combination of somewhat lower land prices and somewhat higher sales prices make the townhouse complex a potentially feasible development project (not coincidentally, Riverwood has seen recent development of this type). Neither townhouses nor apartments are feasible in Oatley (under these assumptions), given the high land prices relative to sales prices. As Figure 2 shows, Oatley has seen quite rapid recent price increases.

Table ii Base case model and assumptions

APARTMENTS

	Wiley Park	Oatley	Riverwood
Land	$36,865	$71,111	$44,744
construction	$250,000	$250,000	$250,000

development	$20,845	$23,039	$24,082
taxes, fees	$31,489	$34,286	$34,124
Holding costs	$28,947	$36,375	$31,258
subtotal	$370,130.38	$418,640.99	$386,616.88
GST owed	$37,013.04	$41,864.10	$38,661.69
total cost	$407,143.42	$460,505.08	$425,278.57
sales price	$395,000.00	$445,000.00	$439,000.00
Margin	-$12,143.42	-$15,505.08	$13,721.43
Percent margin	-3.07%	-3.48%	3.13%

TOWNHOUSES

	Wiley Park	Oatley	Revesby
Land	$110,594	$213,333	$134,231
construction	$280,000	$280,000	$280,000
development	$20,845	$23,039	$24,082
taxes, fees	$34,066	$39,257	$37,252
Holding costs	$45,923	$67,241	$51,430
subtotal	$497,385	$634,360	$534,224
GST owed	$49,738	$63,436	$53,422
total cost	$547,123	$697,796	$587,646
sales price	$550,000	$650,000	$640,000
Margin	$2,877	-$47,796	$52,354
Percent margin	0.52%	-7.35%	8.18%

Note: Estimates were constructed using typical land costs from NSW Department of Land and Property, and typical development costs for infill residential development from NHSC (2010).

I develop a series of sensitivity analyses to test out first the individual and then the cumulative effects of a series of potential subsidy strategies. These subsidy strategies are:

- Increase densities, from 1.5 FSR to 3.0 FSR for apartments, and from 0.5 FSR to 0.6 FSR for townhomes. Increasing density for apartments will change construction costs, as larger buildings will entail additional construction costs such as elevators and more expensive foundations; the minor increase in density for townhomes will not have similar effects, because construction processes will remain similar.
- Reduce development time, from the Sydney average of 16 months for development and planning to the average 7 months for development and planning in Brisbane (keeping the average construction period of 18 months constant) (NHSC 2010).
- Reduce rates on the interest payable during development and construction to a subsidized rate of 5% (government bonds could be used to provide a pool of construction and development financing at below market rates).
- Reduce infrastructure charges on new development, from $15,000 to $10,000.
- Use the standard first-home buyer subsidy ($7,000) to reduce capital costs of development for each unit.
- Use the incremental first-home buyer subsidy offered to home buyers during the GFC ($14,000) to reduce capital costs of development for each unit.

Table iii shows the effects of each of these strategies on the margins estimated for each hypothetical development.

Table iii: Sensitivity analysis of individual strategies

	APARTMENTS			TOWNHOUSES		
	Wiley Park	Oatley	Revesby	Wiley Park	Oatley	Revesby
base case	-3.07%	-3.48%	3.13%	0.52%	-7.35%	8.18%
Increase density	-5.36%	-0.05%	2.34%	5.28%	0.42%	13.15%
Reduce development time to 25 months total	-2.18%	-2.21%	4.08%	1.95%	-5.19%	9.66%
Reduce construction interest to 5%	0.19%	-0.04%	6.25%	3.91%	-3.43%	11.38%
Reduce infrastructure charge by $5,000	-1.68%	-2.25%	4.38%	1.52%	-6.51%	9.04%
Capital subsidy $7,000	-0.99%	-1.64%	5.00%	2.02%	-6.09%	9.46%
Capital subsidy $14,000	1.09%	0.21%	6.87%	3.51%	-4.82%	10.75%

Because construction costs increase for denser apartments, increasing densities reduces rather than enhances returns. The hypothetical development is even less likely to be feasible at higher densities. For townhomes, however, a small increase in density results in positive returns; in the case of Riverwood, where sales prices are higher relative to land prices, margins on townhomes would be attractive. Reducing the length of the development process would have some positive effects on margins, but not sufficient alone to make the hypothetical developments feasible. Reducing the interest payable on land holding and construction costs would be more effective; margins turn positive for both apartments and townhomes in Wiley Park and Riverwood (but not Oatley). Reducing interest rates has more positive effects than reducing infrastructure charges in all cases. The standard home buyer subsidy is not sufficient to fill the financing gap for apartments in Wiley Park and Oatley, but returns turn barely positive when the enhanced grant is used to offset capital costs.

Individually, subsidy strategies are not sufficient to make most of the hypothetical developments feasible. In practice, subsidies could be combined to capture positive interaction effects. The cumulative effects of strategies are explored in Table iv. The combinations tested are:

- Enhanced capital cost subsidy, and reduce development / planning time to 7 months.
- Enhanced capital cost subsidy, reduce development time, and increase density (to 3.0 FSR for apartments, 0.6 FSR for townhomes)
- Enhanced capital cost subsidy, and reduce interest rates on holding costs.
- Enhanced capital cost subsidy, reduce development time, and reduce interest rates on holding costs.
- Enhanced capital cost subsidy, reduce development time, and reduce infrastructure charges.
- Enhanced capital cost subsidy, reduce development time, reduce interest rates on holding costs, and reduce infrastructure charges.

Table iv: Sensitivity analysis of combined strategies

APARTMENTS				TOWNHOUSES		
	Wiley Park	Oatley	Riverwood	Wiley Park	Oatley	Riverwood
Capital subsidy + reduce time	1.98%	1.49%	7.82%	4.94%	-2.66%	12.23%
Capital subsidy + reduce time + increase density	-3.76%	-0.99%	3.27%	9.51%	4.79%	16.99%
Capital subsidy + reduce construction interest	4.23%	3.55%	9.89%	6.81%	-0.97%	13.88%
Capital subsidy + reduce time + reduce construction interest	5.36%	5.35%	11.12%	8.98%	2.47%	16.14%
Capital subsidy + reduce time + reduce infrastructure charge	3.37%	2.72%	9.08%	5.94%	-1.81%	13.09%
Capital subsidy + reduce time + reduce construction interest + reduce infrastructure charge	6.76%	6.59%	12.37%	9.98%	3.32%	17.00%

The combination of an enhanced capital cost subsidy and reducing development time results in a positive margin for all hypothetical apartment options, and the townhome developments in Wiley Park and Riverwood. However, margins for apartment developments are reduced when densities are increased, even with the enhanced capital subsidy and reduced time. One consistent finding of this analysis is that increasing densities does not necessarily improve the feasibility of new apartment developments in low value suburbs. Combining enhanced capital cost subsidies with a lower interest rate on holding costs has far more positive effects, with margins for all three apartment developments becoming solidly positive. A further development of this option, adding in reduced development time, further increases the hypothetical margin (while reducing the foregone interest costs to government). This option is superior to the next one, which combines an enhanced capital cost subsidy, reduced development time, and reduced infrastructure charges. The final option combines all four strategies (excluding increased densities); even in the most difficult market considered here, margins increase to about 6.5%, while margins approach current market expectations for the easiest development location. For townhomes, margins approach 10% in Wiley Park. The margin of 17% for townhome development in Riverwood indicates over-subsidy; in fact, in such a relatively high priced / low land cost location, increasing densities alone would be sufficient for developers to achieve or exceed a target margin of 12.5%.

The strategic, incentive-based approach developed here will entail public costs (beyond the funds redirected from the FHOG). It will also remove down payment assistance from first-home buyers and redirect those revenues to covering development costs. These are evaluated in a separate analysis; the net impacts of this strategy on government resources and first home buyers are found to be modest to negligible (author 2010).

Implications for policy

The first conclusion the above analysis suggests is that different levels of subsidy are needed in different markets; if we had modeled these impacts over time, we would likely find that the feasibility gap changes considerably as assumptions about market conditions change. Similarly, markets exhibit different sorts of constraints on feasibility; different combinations of subsidies have different impacts across the six alternatives. This is hardly surprising, but it raises an

important challenge: such a process removes predictability and certainty, relying, as it must on case-by-case negotiations over a moving target. Would this uncertainty further undermine the development environment?

The key point here is to distinguish between unpredictable outcomes (will decisions arbitrarily change the project's feasibility?) and negotiated outcomes (a variety of means may be used to accomplish a clearly defined outcome – a financially feasible development project that delivers low priced new housing). Understanding that precise regulatory and subsidy decisions will be based on prevailing market conditions, and that agreements will be aimed at making a particular benchmark margin feasible (though not guaranteeing it), provides far greater predictability than business as usual. Designing one size fits all subsidies is a very inefficient approach – either too much subsidy is provided in order to deal with the "difficult" cases, or too little is provided to eliminate waste, so that "difficult" cases are abandoned at the outset.

Second, although one of the six alternatives was likely to achieve competitive margins with very little intervention, even in the best case scenario (combining five different subsidy sources) three of the options were unlikely to come close to the current benchmark of 12.5%. So why would a rational developer choose to go through a negotiation process with little hope of achieving returns competitive with other development options? Admittedly, these returns are somewhat superior to those estimated for infill development in NSW by NHSC (2010). However, there is little to support the expectation that developers would willingly accept returns like these when scarce resources could be far more profitably used serving higher priced markets with higher margins.

There are three ways to address this:

- increase capital subsidies where needed to make returns competitive (thus increasing the volatility of costs to the state)
- expand the number of developers to increase competition for more marginal sites and projects (desirable in the long run but difficult to accomplish immediately), or
- require that a proportion of developments in accessible locations meet "market" affordability targets. Earlier, we reviewed some of the objections to mandatory inclusionary zoning programs. Do they apply here?

Typical objections that mandatory inclusionary zoning merely shifts subsidies to other new home buyers may not apply. Negotiating the appropriate subsidy to make lower priced homes financially feasible ensures that there are no burdens to redistribute narrowly; the only burden is the somewhat lower (but still positive) margin on some homes. A reasonably substantial proportion of affordable homes could be provided under such a regime, especially as some benefits (such as speeding development approval times) will apply to the entire development, increasing margins on more expensive homes too. Thus, it may be possible to use incentives flexibly to overcome legitimate concerns about imposing new requirements. An important finding from international experience with subsidy programs in general is that complexity and delays can be a disincentive to developer participation, regardless of financial returns. But complexity and delay is not inevitable; they result from institutional factors that can be addressed.

Third, if a negotiated set of incentives were to replace the existing poorly targeted FHOG, with more generous support provided to some new construction, how do we ensure that this increases the affordable housing supply? This question has two components – managing the end prices charged so that developers do not capture the capital and other subsidies if the market turns up before project completion, and ensuring that subsidies have a long-term impact on affordability. One of the key difficulties raised by the FHOG is that its benefits (to the extent they exist) are dissipated; the grant must be renewed for each new cohort of buyers, to purchase "affordability"

afresh. Is there a more effective way to deliver supply-side incentives in a more (financially) sustainable model?

Directly regulating prices charged is one possibility, but it adds to enforcement burdens (in particular, of determining appropriate "market prices"), and is difficult to accomplish in subsequent sales. A preferable alternative would be to structure the capital subsidy as shared equity or as a second mortgage, with the public entity (rather than a financial institution) retaining an ownership interest or an investor interest in the property (Bourassa, Greig, and Troy 1995). Shared equity mortgages have also been used to enable public housing tenants to buy their own homes in Queensland and ACT. They have had limited popularity with first home buyers because they are perceived as expensive ways to finance home ownership, limiting the gains from property price increases (Herald Sun 2007). Second mortgages for the capital subsidy may be simpler to administer – typically, payments on "soft" second mortgages are deferred until the home is sold, when the mortgage (and accrued interest) is repaid. It is also possible to structure second mortgages so they will be gradually forgiven over time, enabling owners to build wealth if they remain in the home. In this way, subsidies can be financially sustainable because they would be recaptured if the property were sold within a limited period (five to ten years would be typical), without reducing the gains from ownership unreasonably.

Conclusions

Sydney faces a variety of barriers to increasing the housing supply, especially at affordable prices. Future labour market competitiveness, social integration and stability, and intergenerational equity will be strained by continuing affordability problems. Environmental impacts will be intensified by an affordability strategy focused on Greenfield development, and that fails to make the best use of existing (and future) infrastructure investments. Providing affordable, accessible housing poses multi faceted challenges.

The resources do exist to address these challenges, but current subsidy programs are far less effective than they could be. They tend to have perverse rather than complementary effects. Resources could be redirected to resolving the housing cost gaps that appear to discourage residential development in affordable, accessible locations. This paper argues this could be achieved through a combined regulatory / entrepreneurial role for government, rather than disconnected roles as regulator and as subsidy source. Such a shift entails substantial institutional change. The conditions under which such transformation might be achieved, the related changes that would be needed among levels of government, and the political forces that might support or undermine such change, pose key questions for future research. Similar transformations have been begun or accomplished in other states in Australia, and in other countries, notably the United States and Canada. They are difficult but not impossible; the growing affordability crisis in NSW could act as a key driver of such change.

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